

Appl. No. : **10/775,341**
Filed : **February 10, 2004**

REMARKS

The Examiner's withdrawal of rejections under 35 U.S.C. § 112, first and second paragraphs and the rejection of claims as anticipated by Webb, et al. is gratefully acknowledged. The claims remain rejected as obvious over Webb, et al. Arguments to address this remaining ground of rejection are presented below.

Rejection under 35 U.S.C. § 103(a)

Claims 1-8 and 10-13 are rejected under 35 U.S.C. § 103(a) as unpatentable over Webb, et al. (U.S. Patent No. 6,670,129) in view of Ausubel, et al. (Current Protocols in Molecular Biology, 1988).

Webb, et al. disclose a transfection apparatus in which biomolecules such as DNA are printed onto the plate. Methods of using the apparatus are disclosed in which transfection agent and cells with appropriate media are subsequently added to the plates printed with the biomolecules. While the presently claimed invention differs in that the disclosed plates are coated with a transfection agent, not the biomolecule, the Examiner maintains that "it would have been well within the purview of one of ordinary skill in the art, at the time the invention was made, to initially spot either or both DNA and/or the calcium chloride in a gelatin matrix on the multiwell plate."

As set forth in the Amendment filed on January 9, 2006 (AMENDMENT). "Webb, et al. do not teach or suggest a plate affixed with a transfection agent. At best, in some alternate embodiments, Webb, et al. teach that the transfection agent may be mixed with the foreign biomolecules and then printed onto the solid support (see col. 3, lines 58-61 and col. 7, lines 29-31). However, Webb, et al. provide no motivation to affix a transfection agent to a solid support without the biomolecule(s) of the array." (AMENDMENT, page 11, lines 1-6).

"Regarding claim 10, claim 10 has been amended to recite relatively closed language ("consisting essentially of") which precludes the presence of a biomolecule on the cell culture/transfection device. Furthermore, claim 10 is limited to a preferred embodiment which is "calcium chloride in a gel matrix, wherein the concentration of the calcium chloride in the gel matrix is 10-40 mM" which is neither taught nor suggested by the cited references." (AMENDMENT, page 11, last paragraph).

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Applicants continue to argue that the cited references fail to teach all of the limitations of the claimed invention and provide no motivation to make the claimed invention.

The Examiner asserts that the transfection agent is CaPO_4 -DNA (citing Ausubel, et al., 9.1.1) so that it does not matter which is added first: the DNA biomolecule or the calcium chloride in phosphate buffer.

As argued previously, while Ausubel, et al. teach a method where the “transfection agent” is a CaPO_4 -DNA complex, Applicants have amended claim 1 to clarify that the transfection agent comprises a metal salt which is not pre-mixed with the biomolecule. A CaPO_4 –DNA coating is clearly outside of the scope of claim 1 as the transfection agent is defined as the metal salt alone and claim 1 specifies that the transfection agent/metal salt is not complexed (pre-mixed) with the biomolecule. The calcium phosphate precipitation method described by Ausubel, et al. does not teach or suggest a solid surface “affixed with a composition comprising a transfection agent comprising a metal salt which is not pre-mixed with the biomolecule” as now set forth in claim 1.” (AMENDMENT, page 11, 4th full paragraph).

It is not understood how Ausubel, et al. can be relevant to the present claims when Ausubel, et al. teaches transfection in solution (see illustration on page 9.1.2), not on a transfection plate and consequently do not teach any chemical affixed to a multiwell plate because the method of Ausubel, et al is in solution. This deficiency is not provided by Webb, et al. because Webb, et al. do not teach a metal salt, which is not pre-mixed with the biomolecule, as a transfection agent affixed to wells in a multiwell plate. Neither Webb, et al. nor Ausubel, et al., disclose a transfection agent affixed to a solid support without the biomolecule. Clearly, the cited references, taken separately or together, do not teach all of the elements of the claimed invention.

The Examiner argues that it does not matter which is added first, the DNA or the CaCl_2 in phosphate buffer. The Examiner appears to be saying that the order of addition is not crucial and that any changes in the order of addition would have been obvious to one of ordinary skill in the art. However, the Examiner does not explain how the applied prior art itself would have fairly suggested Applicants’ claimed invention to one of ordinary skill in the art (see pages 4-6 of Appeal No. 2001-1234 for Application No. 08/658,983, copy attached as Attachment A). The art does not suggest affixing a metal salt to the bottom of wells in a multiwell plate without pre-

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mixing the metal salt transfection agent with a biomolecule (claim 1). The art does not suggest coating a solid surface with 10-40 mM CaCl_2 in a gel matrix (claim 10).

The Examiner asserts that one of ordinary skill in the art "would have been motivated to modify the cell transfection apparatus of Webb, et al. so as to have calcium chloride initially printed on the surface in situations where the cell transfection apparatus is not to be used immediately" (Office Action, page 4, last paragraph). However, the motivation provided by the Examiner is found in Applicants' disclosure (see paragraph 0010, for example) not in Webb, et al. or Ausubel, et al. Motivation must be found in the prior art, not in Applicants' own disclosure. The prior art must suggest the desirability of the claimed invention (see MPEP 2143.01, III).

The fact that the references can be combined or modified is insufficient to establish *prima facie* obviousness. The mere fact that references can be combined or modified does not render the resultant combination obvious unless the prior art also suggests the desirability of the combination. *In re Mills*, 916 F.2d 680, 16 USPQ2d 1430 (Fed. Cir. 1990) (Claims were directed to an apparatus for producing an aerated cementitious composition by drawing air into the cementitious composition by driving the output pump at a capacity greater than the feed rate. The prior art reference taught that the feed means can be run at a variable speed, however the court found that this does not require that the output pump be run at the claimed speed so that air is drawn into the mixing chamber and is entrained in the ingredients during operation. Although a prior art device "may be capable of being modified to run the way the apparatus is claimed, there must be a suggestion or motivation in the reference to do so." 916 F.2d at 682, 16 USPQ2d at 1432).

In the present case, both Webb, et al. and Ausubel, et al. are completely silent on a transfection device which is coated with a metal salt, such as calcium chloride or calcium acetate. The desirability of coating a transfection apparatus such as a multiwell plate with a transfection agent is not taught by either of these references. In view of the absence of this teaching from either of these references, the Examiner's statement that Webb, et al. provide a reasonable expectation of success (Office Action, page 5, lines 7-13) is not understood. Furthermore, it could not have been predicted that a metal salt, such as calcium chloride, affixed to a solid surface, could efficiently serve as a transfection device based upon the cited references.

In view of Applicants' arguments, reconsideration and withdrawal of this ground of rejection is respectfully requested.

CONCLUSION

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In view of the foregoing Remarks, it is respectfully submitted that the present application is in condition for allowance. Should the Examiner have any remaining concerns which might prevent the prompt allowance of the application, the Examiner is respectfully invited to contact the undersigned at the telephone number appearing below.

Please charge any additional fees, including any fees for additional extension of time, or credit overpayment to Deposit Account No. 11-1410.

Respectfully submitted,

KNOBBE, MARTENS, OLSON & BEAR, LLP

Dated: May 16, 2006

By: Che S. Chereskin
Che Swyden Chereskin, Ph.D.
Registration No. 41,466
Agent of Record
Customer No. 20,995
(949) 721-6385

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The opinion in support of the decision being entered today was not written for publication and is not binding precedent of the Board.

Paper No. 28

UNITED STATES PATENT AND TRADEMARK OFFICE

BEFORE THE BOARD OF PATENT APPEALS
AND INTERFERENCES

Ex parte JOHN C. PARKS, DAVID H KNOEBEL, LAWRENCE M. JENKINS,
GEORGE H. RANSFORD, GARY L. BOWMAN, JR. and SAADAT HUSSAIN

Appeal No. 2001-1234
Application 08/658,983

ON BRIEF

Before OWENS, KRATZ and PAWLIKOWSKI, *Administrative Patent Judges*.

OWENS, *Administrative Patent Judge*.

DECISION ON APPEAL

This appeal is from the refusal to allow claim 50, which was added after final rejection, and claims 26, 27, 29-34, and 43-48 which depend directly or indirectly therefrom. These are all of the claims remaining in the application.

Appeal No. 2001-1234
Application 08/658,983

THE INVENTION

The appellants' claimed invention is directed toward a process for making decabromodiphenylethane wherein a mixture of bromine and molten diphenylethane is fed to a stirrable reaction mass containing bromine and a bromination catalyst. Claim 50 is illustrative:

50. A process for the manufacture of a decabromodiphenylethane product, which process comprises:

feeding a mixture which is,

(i) formed from at least bromine and molten diphenylethane in a molar ratio of bromine to molten diphenylethane which is within the range of from about 5:1 to about 30:1, and

(ii) is substantially free of a brominating catalyst,

to a stirrable reaction mass comprising bromine and a catalytic amount of a bromination catalyst, such reaction mass being at a temperature which is within the range of from about 30 to about 80°C.

THE REFERENCES

Ransford	5,030,778	Jul. 9, 1991
Produits Chimiques	1,411,524	Oct. 29, 1975
Ugine Kuhlmann (GB '524)		
(Great Britain patent specification)		

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THE REJECTION

Claims 26, 27, 29-34, 43-48 and 50 stand rejected under 35 U.S.C. § 103 as being unpatentable over Ransford in view of GB '524.¹

OPINION

We reverse the aforementioned rejection.

Ransford discloses a process for making decabromodiphenyl alkanes, the preferred decabromodiphenyl alkanes including decabromodiphenylethane (col. 1, lines 26-49). The process includes charging a reaction vessel with a bromination catalyst and liquid elemental bromine, feeding diphenylalkane in molten or solute form, at about 0.055 to about 0.033 moles of diphenylalkane per mole of elemental bromine initially charged, into the reaction vessel at a point below the level of the charged liquid bromine, and maintaining the reaction mass at about 30 to about 80°C (col. 1, lines 26-37; col. 2, lines 7-8).

¹ A rejection of claims 26, 27, 29-34, 43-48 and 50 under 35 U.S.C. § 103 over GB '524 in view of U.S. 5,055,235 to Brackenridge et al. is withdrawn in the examiner's answer (page 4).

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Ransford does not disclose feeding into the reaction vessel a mixture of bromine and molten diphenylalkane.

GB '524 discloses a process for brominating an aromatic compound by introducing the aromatic compound into a reaction vessel containing 0.5-100% of the amount of bromine required for the reaction, the additional bromine being added "parallel to" the aromatic compound (page 1, lines 25-33). GB '524 also discloses "placing in the reactor a certain quantity of the bromine necessary and then introducing with agitation the product to be brominated on the one hand and the additional quantity of bromine on the other" (page 2, lines 17-21). In example 11, bromine and molten diphenyl are added through separate feed flasks to a reactor containing bromine and an anhydrous aluminum chloride bromination catalyst, and decabromodiphenyl is produced at 30-50°C. GB '524 does not disclose feeding a mixture of bromine and molten aromatic compound into the reactor.

The examiner argues that in the absence of unobvious results the order of addition of reactants is not crucial and, therefore, changes in the order of addition of the reactants would have been obvious to one of ordinary skill in the art (answer, pages 5-6).

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The examiner has the initial burden of establishing a *prima facie* case of obviousness. See *In re Piasecki*, 745 F.2d 1468, 1472, 223 USPQ 785, 788 (Fed. Cir. 1984); *In re Rinehart*, 531 F.2d 1048, 1051, 189 USPQ 143, 147 (CCPA 1976). Unless the examiner has established a *prima facie* case of obviousness, the appellants need not provide any results.

The examiner does not explain how the applied prior art itself would have fairly suggested the appellants' claimed invention to one of ordinary skill in the art. See *In re Rinehart*, 531 F.2d at 1051, 189 USPQ at 147. Instead, the examiner merely relies upon a *per se* rule that the order of addition of reactants is not crucial. As stated by the Federal Circuit in *In re Ochiai*, 71 F.3d 1565, 1572, 37 USPQ2d 1127, 1133 (Fed. Cir. 1995), "reliance on *per se* rules of obviousness is legally incorrect and must cease." Moreover, because GB '524 discloses adding the bromine and the molten aromatic compound in parallel (page 1, lines 30-33), the order of addition of the reactants is not an issue in this case. Therefore, the *per se* rule relied upon by the examiner is irrelevant. The relevant issue regarding claim 50, the sole independent claim, is whether the applied

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references would have fairly suggested, to one of ordinary skill in the art, mixing bromine and molten aromatic compound before they are fed to the reaction vessel. In dependent claims 29, 30 and 45, a further issue is whether the applied references would have led one of ordinary skill in the art to carry out this mixing at specified short times before the mixture is fed to the reaction vessel.

The examiner has not provided evidence or technical reasoning which shows that the applied references would have fairly suggested, to one of ordinary skill in the art, feeding a mixture of bromine and molten aromatic compound into the reaction vessel, especially at the short times after mixing recited in claims 29, 30 and 45.² Hence, the examiner has not established a *prima facie* case of obviousness of the process recited in any of the appellants' claims. Consequently, we reverse the examiner's rejection.

²The examiner appears to argue that Ransford's diphenylalkane solute is in molten form (answer, page 6), but has provided no supporting evidence.

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DECISION

The rejection of claims 26, 27, 29-34, 43-48 and 50 under
35 U.S.C. § 103 over Ransford in view of GB '524 is reversed.

REVERSED

TERRY J. OWENS)	
Administrative Patent Judge)	
)	
)	
)	BOARD OF PATENT
PETER F. KRATZ)	
Administrative Patent Judge)	APPEALS AND
)	
)	INTERFERENCES
)	
BEVERLY A. PAWLIKOWSKI)	
Administrative Patent Judge)	

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Philip M. Pippenger
Albemarl Corporation
451 Florida Street
Baton Rouge, LA 70801